

NON-PUBLIC?: N
ACCESSION #: 8806090130
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Salem Generating Station Unit 2 PAGE: 1 of 4

DOCKET NUMBER: 05000311

TITLE: Reactor Trip From 97% Power - Control Rod Dropped
EVENT DATE: 05/13/88 LER
#: 88-009-00 REPORT DATE: 05/31/88

OPERATING MODE: 1 POWER LEVEL: 097

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: M. J. Pollack - LER Coordinator TELEPHONE #: 609-339-4022

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: On May 13, 1988 at 2349 hours, a reactor trip occurred. The first out indication was "Power Range Negative Flux Trip". At the time of the trip, reactor power was being reduced to between 85% and 90%, via rod insertion, to support performance of Technical Specification Surveillance 4.3.4.2. Investigations revealed it is highly probable that Control Rod No. 1D3 had dropped resulting in the negative rate trip. Testing to determine why the control rod dropped was inconclusive. The 21BD Power Cabinet Alarm Circuitry Card was replaced. The Unit was returned to service on May 15, 1988. No further problems or concerns associated with the Control Rods have been identified.

(End of Abstract)

TEXT: PAGE: 2 of 4

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as (xx)

IDENTIFICATION OF OCCURRENCE:

Reactor Trip From 97% Power - Control Rod Dropped

Event Date: 5/13/88

Report Date: 5/31/88

This report was initiated by Incident Report No. 88-174.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 Reactor Power 97% - Unit Load 1120 MWe

DESCRIPTION OF OCCURRENCE:

On May 13, 1988 at 2349 hours, a reactor trip occurred. The first out indication was "Power Range Negative Flux Trip". At the time of the trip, reactor power was being reduced to between 85% and 90%, via rod insertion, to support performance of Technical Specification Surveillance 4.3.4.2.

Technical Specification Surveillance 4.3.4.2 requires the turbine overspeed protection system (JJ) to be demonstrated operable every 7 days when rated thermal power is greater than or equal to 85%.

The Unit was stabilized in Mode 3 (Hot Standby). The Nuclear Regulatory Commission (NRC) was notified of the automatic actuation of the Reactor Protection System (JC), at 0015 hours on May 14, 1988, in accordance with the requirements of the Code of Federal Regulations 10CFR 50.72(b)(2)(iii).

APPARENT CAUSE OF OCCURRENCE:

Investigations revealed it was highly probable that Control Rod No. 1D3 had dropped resulting in the negative rate trip. Testing to determine why the control rod dropped was inconclusive. The testing included:

Resistance checks of all Control Rod Coils - all found within acceptance specifications

Control Rod 1D3 fuses were resistance checked - found satisfactory

Temperature measurements were made around the Control rod coils

APPARENT CAUSE OF OCCURRENCE: (cont'd)

- They were determined by calculation using the coil resistance measurements. Results indicated temperature to range between 125 degrees F and 175 degrees F which is acceptable

Control Rod 1D3 stationary coil, movable coil, and lift coil connectors and junction box terminations were checked for loose parts and signs of water (which could cause terminal shorting) at the connectors. The coils were also meggered and resistance checked. - Coils and connectors were found satisfactory

Current orders were taken, during rod movement in and out of the core, in both the 21BD and 22BD Power Cabinets to check for any command gaps which would allow a rod drop - no irregularities found

All Control Rods were withdrawn ten steps and reinserted - no problems were identified

ANALYSIS OF OCCURRENCE:

The Power Range Negative Rate trip provides protection to ensure the minimum departure from nucleate boiling ratio (DNBR) is maintained above 1.30 for control rod drop accidents. At high power a single or multiple rod drop accident could cause local flux peaking which, when in conjunction with nuclear power being maintained equivalent to turbine power by action of the automatic rod control system, could cause an unconservative local DNBR to exist. The Power Range Negative Rate trip will prevent this from occurring by tripping the reactor for all single or multiple dropped rods.

The reactor protection system functioned as designed in response to the dropped rod transient. Therefore, this event involved no undue risk to the health or safety of the public. However, because of the automatic actuation of the reactor protection system, this event is reportable in accordance with NRC Code of Federal Regulations 10CFR 50.73(a)(2)(iv).

CORRECTIVE ACTION:

Testing of the probable causes for the 1D3 Control Rod to have dropped have been completed.

An Urgent Failure Alarm annunciation should occur if a control rod drops. However, the alarm did not annunciate as would be expected

during this event. A possible failure to initiate an Urgent Failure and hold rods could be caused by a problem with the 21BD Power Cabinet Alarm Circuitry Card. This card was replaced. Additionally, a test to verify the operability of the card (ensuring an Urgent Failure would energize and hold both the Stationary and Movable Coils of the Selected Group in the 21BD Power Cabinet) was performed. Results of the test were inconclusive; the card functioned as designed.

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CORRECTIVE ACTION: (cont'd)

The Unit was returned to service on May 15, 1988. No further problems or concerns associated with the Control Rods have been identified.

/s/ J. M. ZUPKO, JR.
General Manager -
Salem Operations

MJP:pc
SORC Mtg. 88-049

ATTACHMENT # 1 TO ANO # 8806090130 PAGE: 1 of 1

PSE&G
Public Service Electric and Gas Company
P.O. Box E, Hancocks Bridge, New Jersey 08038
Salem Generating Station

May 31, 1988

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sir:

SALEM GENERATING STATION
LICENSE NO. DPR-75
DOCKET NO. 50-311
UNIT NO. 2
LICENSEE EVENT REPORT 88-009-00

This Licensee Event Report is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR

50.73(a)(2)(iv). This report is required within thirty days of discovery.

Sincerely yours,
/s/ J. M. ZUPKO, JR.
J. M. Zupko, Jr.
General Manager -
Salem Operations
MJP:pc
Distribution

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